

APPENDIX 7

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

Civil Action No. 1:97CV1138

RHÔNE-POULENC AGRO S.A.,

Plaintiff,

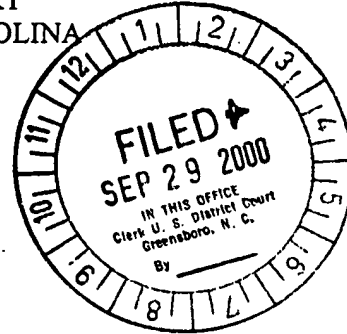
v.

MONSANTO COMPANY,

and

DEKALB GENETICS CORPORATION,

Defendants.



DEKALB's Post-Trial Proposed
Findings Of Fact And Conclusions
Of Law

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RPA's seeks an order under 35 U.S.C. § 256 directing the PTO to add one or more of the following people as inventors on U.S. Patent Nos. 5,554,798 (the '798 patent – JTX 2) and 6,040,497 (the '497 patent – JTX 1): Rick DeRose, Georges Freyssinet, Michel LeBrun, Alain Sailland, and Bernard Leroux. The case was tried to the Court using an advisory jury.¹

RPA cannot succeed on its correction of inventorship counterclaim for the '798 patent because: (1) RPA failed to establish any type of "joint" behavior between its alleged co-inventors and the named inventors (Lundquist and Walters), and (2) the '798 patent issued from a continuation of a patent application filed by BioTechnica in April 1990 well before RPA collaborated with DEKALB or even developed its alleged contribution to the '798 patent.

RPA cannot succeed on its correction of inventorship counterclaim for the '497 patent because: (1) the inventive aspects of the '497 patent claims are the insertion points for the genetic material within the claimed events, and (2) RPA's alleged joint inventors did not make any significant contribution to the inventive aspects of the claimed invention (the insertion points) and did not participate in any type of joint effort with the named inventors (Spencer, Mumm, and Gwyn) after RPA's alleged contribution entered the public domain.

In any event, RPA cannot succeed on its joint inventorship counterclaim because the contributions made by RPA's alleged joint inventors were merely derived from Calgene's Luca Comai. Even if the Court does not hold that any significant contribution by RPA was derived in whole from Comai, the contributions made by RPA's alleged joint inventors were certainly not significant in light of what was known in the art.

¹ Because the present jury's role is merely advisory, this case is in the same posture as if it were being tried to the court and thus falls within Fed. R. Civ. P. 52. See *Troy v. City of Hampton*, 756 F.2d 1000, 1003 (4th Cir. 1985) (citing *Cox v. Babcock & Wilcox Co.*, 471 F.2d 13 (4th Cir. 1972)).

I. FINDINGS OF FACT

The relevant facts are set forth below in five sections. Sections A and B relate to the '798 and '497 patents, respectively, and how those patents came to issue. Section C relates to the work performed at DEKALB to make fertile transgenic glyphosate resistant corn. Section D relates to RPA's pre-litigation conduct, conduct which establishes that those of skill in the art at RPA recognized that the mere contribution of genetic constructs, without more, does not make the people who designed those constructs co-inventors to patent claims that cover fertile transgenic corn containing the constructs. Section E relates to RPA's derivation of the alleged contributions from Calgene scientist Luca Comai and the prior art status of those contributions.

A. The '798 Patent

1. The Applications That Led To The '798 Patent

The '798 patent issued from U.S. Patent Application No. 441,073, which was filed on May 15, 1995. JTX 2. That application was a continuation of U.S. Patent Application No. 508,045, which was filed on April 11, 1990, by a company called BioTechnica. See JTX 2; PTX 1807 (file history). The May 1995 and April 1990 patent applications as filed are identical.² See PTX 1807; DTX 1998 & 1998.1 (responses to requests for admission); Tr. 781. Both applications name Ronald C. Lundquist and David A. Walters as inventors. In April 1990, Lundquist and Walters worked for a subsidiary of BioTechnica called Plant Science Research. DEKALB acquired the April 1990 application when it purchased various assets from BioTechnica.

² More than a year before the May 1995 application was filed, the PCT equivalent of the April 1990 U.S. application, WO9110725, published in Europe. See DTX 2004 at Tab A. Thus, if the May 1995 application was not given the April 1990 filing date of its identical parent, the PCT publication would be prior art under 35 U.S.C. § 102(b).

Both applications (and the '798 patent) describe a novel method for obtaining fertile transgenic corn. While an earlier report on BioTechnica in the Wall Street Journal was the first public report that BioTechnica scientists had achieved the long sought-after breakthrough of making fertile transgenic corn (*see* DTX 2005 at Tab B), the 1990 patent applications³ were the first patent applications to contain a detailed description of the successful transformation of corn to make a plant that was both transgenic and fertile. That new process enabled, for the first time, someone to take the genetic constructs that had been used in other plants and use them in corn. By removing the transformation barrier for corn, BioTechnica and DEKALB suddenly opened the door for the creation of novel fertile transgenic corn plants containing virtually any transgene.

The April 1990 BioTechnica application contains the following disclosures on behalf of Lundquist and Walters relating to glyphosate tolerance, EPSP synthase genes, and genes with which to transform corn:

1. The specific composition of the DNA is not central to the present invention and the invention is not dependent upon the composition of the specific transforming DNA used. Weising et al. (1988),⁴ the subject of which is incorporated herein by reference, describes suitable DNA components thereof which include promoters, polyadenylation sequences, selectable marker genes, reporter genes, enhancers, introns, and the like, as well as provides suitable references for compositions therefrom. PTX 1807 at DKB 80459, lines 15-24.
2. Suitable heterologous DNA for use herein includes all DNA which provides for, or enhances, a beneficial feature of the resultant transgenic corn plant. ... For example, the DNA can encode a ... bacterial [EPSP]⁵ synthase for resistance to glyphosate herbicide PTX 1807 at DKB 80459, line 29 to DKB 80460, line 5.

³ Although this brief focuses on the April 1990 application, that application descended from a January 1990 application. However, for purposes of this case, the April 1990 date is sufficient to negate RPA's joint inventorship claim and DEKALB does not need to go back to its January 1990 date.

⁴ The Weising article is DTX 1938.

⁵ A typographical error in the original application was corrected on August 14, 1995, by amending the term ESPS to read EPSP. PTX 1807 at DKB 81389.

3. Useful selectable markers are well known in the art and include, for example, antibiotic and herbicide resistance genes. Specific examples of such genes are disclosed in Weising et al, supra. ... Other selectable markers include ... those genes which code for resistance or tolerance to glyphosate Those selectable marker genes which confer herbicide resistance or tolerance are also of commercial utility in the resulting transformed plants. PTX 1807 at DKB 80460, line 22 to DKB 80461, line 2.

RPA's alleged joint inventors did not communicate or collaborate with Lundquist, Walters, or anyone at BioTechnica regarding glyphosate resistance before the April 1990 application was filed. See DTX 1998 & 1998.1; Tr. 1280-83; 1352-55. Indeed, it is undisputed that RPA's alleged joint inventors did not contribute to the conception of any subject matter disclosed in the April 1990 application. See DTX 1998. Thus, everything disclosed in the April 1990 application was disclosed by Lundquist and Walters without any input or contribution from anyone at RPA. Specifically, without any contribution from anyone at RPA, Lundquist's and Walters' April 1990 patent application showed: (1) using Lundquist's and Walter's corn transformation techniques with any DNA, i.e., the application did not restrict the transforming DNA to any particular DNA, (2) using all of the DNA components included in Weising et al., (3) using an EPSP synthase gene for resistance to glyphosate herbicide, and (4) using selectable markers such as herbicide resistance genes, e.g., "genes which code for resistance or tolerance to glyphosate."

2. The '798 Patent And The Claims At Issue

Independent claim 1 of the '798 patent states:

A fertile transgenic *Zea mays* plant containing an isolated heterologous DNA construct encoding EPSP synthase wherein said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, wherein said resistance is not present in a *Zea mays* plant not containing said DNA construct, and wherein said DNA construct is transmitted through a complete normal sexual cycle of the transgenic plant to the progeny generation.

JTX 2 at 26:15-23. Claim 1 is directed to a fertile transgenic corn plant containing a gene that encodes EPSP synthase and does not specify any particular type of EPSP synthase that must be encoded. The '798 patent contains the same disclosures made in the April 1990 application, portions of which are set forth above in section I.A.1.

On August 24, 2000, during trial, and again at the end of trial, the Court gave the advisory jury the Court's interpretation of claim 1. Tr. 388-390. The Court instructed the jury:

The phrase a fertile transgenic Zea mays plant means a corn plant that is: One, transgenic because it includes DNA that was introduced into the plant or one of its ancestors through genetic engineering; and two, fertile, because it can pass that introduced DNA on to its offspring. The phrase heterologous DNA construct encoding EPSPS synthase wherein said DNA construct is expressed so the plant exhibits resistance to normally toxic particular levels of glyphosate, wherein said resistance is not present in a Zea mays plant not containing said DNA construct, means that the corn plant contains DNA; one, that is not normally found in that plant; and two, that has the necessary components to cause the plant to produce an EPSPS enzyme which can be natural or mutated or from any source. When the transgenic plant is exposed to an amount of glyphosate herbicide that would harm an otherwise comparable nontransgenic corn plant, the transgenic plant will not be adversely effected due to the presence of the EPSPS enzyme.

The phrase and wherein said DNA construct is transmitted through a complete normal sexual cycle of the transgenic plant to the progeny generation means that the DNA construction is capable of being transmitted sexually to the offspring of the plant.

Tr. 389-390.⁶

During the prosecution of the '798 patent, the Examiner rejected the claims. In response, DEKALB submitted a declaration which included data showing that transgenic corn plants made to include a bacterial EPSP synthase gene were both fertile and exhibited resistance to low levels of glyphosate. PTX 1807, DKB 81243 & 81273-83. Specifically, as recognized by the

Examiner, fertility was established because the plants segregated in the expected Mendallian one to three ratio. *Id.* at DKB 81243. In other words, the ratio of (1) plants showing resistance to glyphosate to (2) plants which died under the same application of glyphosate, was three to one. *See* Tr. 1116-19. The resistance was evidenced by the fact that the non-transgenic plants died while the transgenic plants survived, although they were stunted.

B. The '497 Patent

The '497 patent issued from a patent application filed by DEKALB on April 3, 1997. JTX 1. That application does not have any "parent" applications so the '497 patent was deemed filed on April 3, 1997. The '497 patent claims are directed to four specific transformation events known as GA21, FI117, GG25, and GJ11. Seeds comprising each of those transformation events were deposited by DEKALB at the American Type Culture Collection, or ATCC.⁷ *See* JTX 1 at 59:10-18. The PTO noted that the invention claimed in the '497 patent "is directed to transformation events defined as GJ11, FI117, GG25, and GA21, *that correspond to precise insertion points of the EPSPS gene into the genome of maize.*" PTX 1815 at DKB 76556 (emphasis added).

By the time the '497 patent application was filed, the genetic material used to make the claimed transformation events had entered the prior art. Indeed the constructs used in those four events were disclosed in both DEKALB and RPA publications. *See* DTX 1222, 1257, 1488 (proffer at 19), 1661 (proffer at 20). RPA's own patent agent, Francios Chretien, admitted that DEKALB's European publication WO9506128 (DTX 1661) "disclosed our gene without claiming it and thus the gene finds itself in the public domain." *See* DTX 1606 at Tab C (English

⁶ DEKALB maintains that this interpretation is incorrect for the reasons set forth in its arguments presented at trial and in the briefs filed during trial regarding claim construction.

translation). He also admitted that “the indication of the place of a gene’s mutation alone allows a specialist to reproduce it.” *Id.* Finally, Chretien notes his concern that the public disclosure of the DMMG may deprive RPA of royalties and deprive DEKALB of protection in case of commercialization of glyphosate-tolerant corns. *Id.*

Not only were the genetic components of the claimed transformation events old in the art, but the ‘497 patent itself concedes that the transformation techniques used to transform those components into fertile transgenic corn were known in the art. *See e.g.* JTX 1 at 1:31-34. The ‘497 patent even references the ‘798 patent, stating that “[m]ethods for production of glyphosate resistant corn plants also have been described ... (U.S. Pat. No. 5,554,798).” JTX 1 at 2:40-42. In other words, not only were all of the transgenic pieces of DNA used in GA21, FI117, GG25 and GJ11 in the prior art, but the process for combining those pieces and inserting the resulting combination into corn to make fertile transgenic corn was in the prior art.

The ‘497 patent further states that the specific constructs provided to DEKALB by RPA were in the prior art, citing and incorporating by reference an August 1993 DEKALB U.S. Patent Application. JTX 1 at 51:65-52:27. Thus, DEKALB scientists disclosed during prosecution that the genetic material supplied by RPA was known in the art. However, the unique arrangement of those prior art pieces in the specific transformation events claimed in the ‘497 patent, GA21, FI117, GG25 and GJ11, were not in the prior art. It is the unique and nonobvious arrangement of the prior art constructs in the claimed transformation events – an arrangement to which RPA did not contribute – that make those claimed transformation events patentable.

⁷ By specifically claiming the deposited event, the ‘497 patent claims cover only the deposited seed lines. Thus, the ‘497 patent claims do not reach other transformation events even if they are made with the same genetic material.

C. DEKALB's Work

RPA's co-inventorship counterclaim for the '798 and '497 patents rests on the fact that RPA gave DEKALB various DNA material that DEKALB used in making glyphosate resistant corn lines. Specifically, RPA transferred the DMMG, the single mutant maize gene (or "SMMG"), and the OTP to DEKALB in early 1993. After substantial stalling by RPA, who was telling DEKLAB that it would obtain rights to the rice actin promoter for DEKALB from the developer of the rice acting promoter at Cornell (*see* DTX 290) at DKB 26534),⁸ DEKALB obtained the rice actin promoter and a license to the promoter on its own from Cornell. Tr. 1198

The SMMG that RPA provided to DEKALB contained the same amino acid mutation that had been designed by Monsanto and had been disclosed in a Monsanto patent that published in May of 1988. *See* PTX 1425; Tr. 1114-15. Indeed, RPA referred to that mutation as the "Monsanto mutation." Tr. 316. The EPSP synthase disclosed in Monsanto's patent application, the same EPSP synthase generated by the SMMG transferred to DEKALB by RPA, is a non-bacterial EPSPS gene. Tests at DEKALB showed that the SMMG also conferred resistance to glyphosate. Tr. 116-19. Thus, before Lundquist and Walters filed their April 1990 application and before RPA transferred either the SMMG or the DMMG to DEKALB, the prior art showed genes that would make bacterial EPSP synthase and non-bacterial EPSP synthase to impart glyphosate resistance to plants.⁹

Before June of 1991, DEKALB (and those in the art) knew that the rice actin promoter was an effective promoter for use in corn. That fact was described by Dr. Wu's lab at a 1991 conference in Keystone, Colorado. *See* DTX 1920. Both Dr. Mackey and Dr. Orosco learned to

⁸ *See also* DTX 1649 at DKB 9798 ¶ 1 (proffer at 2).

⁹ DEKALB chose to focus on the DMMG in part from fear that Monsanto's patent rights to the SMMG would prevent DEKALB from commercializing the SMMG. *See* Tr. 1115.

use the actin promoter for their transformation work in corn from a Wu poster presentation before the first DEKALB-RPA meeting in June of 1991. Tr. 1183-98.

After RPA transferred DNA material, for example RD-125, to DEKALB in early 1993, RPA disappeared from the scene. RPA did not have any involvement in (1) final plasmid preparation undertaken at DEKALB, (2) the bombardments or electroporations that transformed the corn tissue, (3) the regeneration or selection of the transformed corn tissue to make R₀ plants, (4) the breeding of R₀ plants to make R₁ plants, (5) the selection of fertile transgenic plants from the R₁ generation, or (6) the testing of the fertile transgenic plants for various levels of glyphosate resistance. DEKALB undertook all of that development work on its own and in the end created GA21, FI117, GG25 and GJ11.

D. RPA's Prelitigation Behavior Underscores The Fact That RPA Is Not A Co-Inventor Of Any Of The Patents-In-Suit¹⁰

1. RPA's Communications With DEKALB Show RPA Is Not, And Cannot Claim To Be, A Co-Inventor

In October of 1991, during the very early stages of RPA's interaction with DEKALB, RPA suggested that RPA and DEKALB should jointly patent a strategy for production of DNAs for bombardment transformations. DTX 1881 at ¶ 4 (proffer at 1). DEKALB's Dr. Mackey responded to RPA saying that the subject matter RPA was suggesting should be jointly patented was the sole invention of DEKLAB. DTX 1649 (proffer at 2). RPA's Dr. Freyssinet responded to Dr. Mackey that there were two options – either take a joint patent on the whole strategy or separate patents depending on the part of the procedure. DTX 1826. While nothing ever became of that discussion, the 1991-92 exchange between RPA and DEKALB relating to joint inventorship demonstrates two things: (1) RPA certainly had no qualms about asserting that

¹⁰ Most, if not all, of the evidence cited in this section was excluded from the advisory jury by the Court and is included in DEKALB's proffer and by citation in DEKALB's brief on equitable estoppel.

something should be jointly patented if it thought that was the case, and (2) RPA's personnel did not hesitate to discuss or interpret U.S. patent issues, particularly as they related to inventorship issues. *See also* June 21, 2000 deposition of Chris Flick at 822:15-824:6; 839:11-21 (proffer at 12).

Later, in 1993, DEKALB asked RPA if DEKALB could disclose various RPA information to the PTO in conjunction with DEKALB's prosecution of its patent applications for transgenic corn. *See* DTX 595, 599 & 607 (proffer at 4, 5, & 6). RPA agreed to DEKALB's "use of [RPA] constructs to exemplify [DEKALB's] patent on corn transformation under three conditions." *See* DTX 1673 (proffer at 7). One of those conditions was that if RPA "need[s] similar information for supporting our patent on promoters [RPA] can use data from [DEKALB's] side." *Id.* RPA did not condition the use of its information or constructs upon DEKALB's naming of RPA personnel as joint inventors on DEKALB's patents. *Id.*

Shortly thereafter, RPA requested DEKALB's information on the performance of various genetic constructs, including the single and double mutant maize genes. DTX 1828 (proffer at 8). In a November 12, 1993 letter, DEKALB informed RPA that it could provide the requested data:

as long as the subject of your patent applications do not overlap ours, i.e., *our claims are to the fertile transgenic corn containing these promoters and genes*. If your claims are to the genes and promoters there is no problem at all.

DTX 1646 (proffer at 9) (emphasis added). On his copy of that November 12 letter, RPA's Dr. DeRose, one of the alleged co-inventors wrote:

I think this is fine. We can work our claims out around corn. I think our original agreement with them was they could produce fertile maize containing these genes and we can cover all the other plants with our patent.

RPA's Dr. Freyssinet responded to DEKALB on November 30, 1993, saying "I confirm that our claims will be for genes and promoters and not fertile transgenic corn." DTX 1647 (proffer at 10). In reliance on RPA's representations, DEKALB sent RPA the requested information, stating:

Enclosed is all of the information that we have available relative to CT7, maize EPSPS genes, and promoters supplied to us by RPA. You are free to use this information in patent applications as long as there are no claims to fertile maize plants.

DTX 43 (proffer at 11). The 1993 correspondence is also reflected in the deposition testimony of Christopher Flick. *See, e.g.*, June 21, 2000 deposition of Chris Flick at 839:24-849:17 (proffer at 12).

The facts relating to the 1993 RPA communications with DEKALB are significant for two reasons. First, they reflect the understanding of people who are skilled in the art of biotechnology that genes and promoters are one invention, and that fertile transgenic plants containing those genes and promoters are a separate invention. That understanding is highlighted by the fact that RPA had previously asserted co-inventorship when it thought it might be a co-inventor. Here, instead of making such an assertion – as it had done in 1991 – RPA was silent although it clearly understood that DEKALB was seeking claims on fertile transgenic corn containing the DNA supplied by RPA. *See Consolidated Aluminum Corp. v. Foseco Int'l Ltd.*, 10 USPQ2d 1143, 1172 (N. D. Ill. 1988), *aff'd*, 716 F. Supp. 316 (N. D. Ill. 1989), *aff'd*, 910 F.2d 804 (Fed. Cir. 1990) ("[F]ailure of others to claim inventorship at the time of the original inventors' publication is evidence permitting an inference that [the] other's position [as inventors is] not sustainable.") Second, the 1993 communications lay the foundation for DEKALB's equitable estoppel defense, which is briefed separately.

2. RPA's Own Patents Prove That Its Purported Contribution Was Not Substantial And Does Not Entitle It To Joint Inventorship

As noted above, RPA's co-inventorship counterclaim is based on the fact that RPA transferred genetic material to DEKALB. It is undisputed that RPA had zero input with respect to DEKALB's transformation of that genetic material into fertile transgenic corn. Indeed, RPA conceded that it did not know how to make fertile transgenic corn, and was unable to do so until 1997 or 1998. However, RPA's own conduct established that those of skill in the art understood that supplying genetic material does not entitle the supplier to be named as a co-inventor on a patent that claims plants derived from the supplied genetic material – even when the genetic material was supplied as part of a collaboration.

In the late 1980s and into the early 1990s, RPA was in a partnership with Calgene. Calgene supplied RPA with genetic material, including the CT-7 gene made by Calgene's Dr. Comai. RPA used that material to make glyphosate tolerant tobacco plants. Notwithstanding the fact that Calgene supplied genetic material that RPA used to make RPA's purportedly novel plants, RPA did not name one Calgene scientist as a co-inventor on any of RPA's patents that cover such plants. *See, e.g.*, U.S. Patent Nos. 5,491,288 (DTX 1654); 5,792,930 (DTX 1653); and 5,633,448 (PTX 7) (proffer at 13, 14, & 15). The significance of RPA's omission of the Calgene scientists is found both in the omission itself and in the explanatory testimony of RPA's witnesses, which when deposed explained why merely supplying genetic material does not make the supplier a co-inventor of plants derived from the supplied genetic material (proffer at 17, 18, 22, & 23).

Another aspect of RPA's prelitigation behavior which reflects upon the lack of any significant contribution by RPA's alleged joint inventors relates to RPA's argument that the inclusion of a methionine in RD-125 assists in stabilizing the protein. However, RPA's own

French patent on RD-125 (DTX 1627 at Tab D), does not mention anything about the methionine. That clearly indicates that outside of the context of this trial, RPA's own scientists did not regard the methionine as significant. Moreover, although he provided most of RPA's testimony at trial and claimed to have designed and built RD-125, Dr. DeRose is not even named by RPA as an inventor on RPA's own patent on RD-125 – yet RPA seeks to have DeRose named on DEKALB's patents based upon his supply of RD-125 to DEKALB.

E. The Contribution Claimed By The Joint Inventors Was Not Significant In Light Of The State Of The Art

RPA's purported joint inventors claim to have contributed genetic constructs such as RD-125, which comprised a Met, the OTP, the DMMG, and a NOS terminator. Another provided construct included a histone promoter and intron. However, at the time, the only conceivable significant items in light of the state of the art were the two mutations in the double mutant maize gene, which were contributed solely by Dr. Comai. Everything else was well known in the art.

Initially, it was well known that any construct to provide glyphosate tolerance would include a promoter, a transit peptide, some EPSP gene, and a terminator sequence. The use of such a construct could therefore not be considered a significant contribution by RPA.

Moreover, promoters were well known at the time of RPA's inventors' claimed contribution. In fact the rice actin promoter used in GA21 was included by DEKALB, received from Cornell, and had been discovered, characterized, and published by Dr. Wu of Cornell as good promoter to use in corn before the work between RPA and DEKALB began. DEKALB got the idea to use the actin promoter from attending Wu's poster presentation at the Keystone meeting in January 1991, not from any statements made by RPA personnel. This promoter outperformed the histone promoter provided by RPA at least because the events in the '497 patent with the histone promoter experienced male sterility. JTX 1; TR. 1329-31. Accordingly,

providing DEKALB with the histone promoter which worked no better than ones well known in the art was not a significant contribution.

The intron and Nos terminator sequences similarly cannot be considered significant as they were similarly well known in the art.

With regards to the OTP, the use of transit peptides in connection with EPSP synthase to confer glyphosate tolerance had been published by Dr. Comai before any work commenced between RPA and DEKALB. DTX 148; Tr. 304-05. There is no evidence that the exact transit peptide provided, the OTP, worked any better than transit peptides published by Dr. Comai, again before any work commenced between RPA and DEKALB. The only comparative data at RPA, in fact, proved that their OTP worked worse than the Comai transit peptides. PTX 1429 & DTX 1477. The OTP, therefore, also cannot be considered a significant contribution.

Although the Met was argued to be a significant contribution, there was no evidence, much less clear and convincing evidence that it did anything. There was only a wholly unsubstantiated theory by one interested purported inventor that he thought it could possibly have an effect. Tr. 344-45; *see also* Tr. 992. Such testimony is again, wholly insufficient to establish a significant contribution.

With regards to the DMMG, it was undisputed that the use of a mutated maize gene had been published by Monsanto in its 1988 EPO application long before any work began between RPA and DEKALB. *See* PTX 1425; Tr. 1114-15. That publication disclosed a single mutant maize EPSP with a gly-ala mutation at position 96. Any novelty of the DMMG over the Monsanto publication is owed entirely to the mutations – the Thr to Ile at position 102, and the Pro to Ser at position 106. The evidence was uncontroverted that those mutations originated solely with Dr. Comai at Calgene. PTX 1429 & DTX 1477. RPA's only work on the DMMG

was to follow state of the art procedures to isolate the maize gene and provide it to another company, Transgene, to make Comai's suggested mutation. In light of the state of the art, such conduct cannot be considered a significant contribution by anyone at RPA.

II. CONCLUSIONS OF LAW

A. The Burden Of Proof That RPA Must Meet To Establish Joint Inventorship

Both DEKALB patents-in-suit are presumed to be valid and presumed to name the correct inventors. *Canon Computer Sys. v. Nu-Kote Int'l, Inc.*, 134 F.3d 1085, 1088 (Fed. Cir. 1998) (citing *Hess v. Advanced Cardiovascular Sys.*, 106 F.3d 956, 980 (Fed. Cir. 1997)). Accordingly, RPA's burden of proving co-inventorship at trial is the same as if RPA were trying to prove the patents-in-suit invalid – RPA must prove its co-inventorship counterclaim by clear and convincing evidence. *Hess* at 980. Clear and convincing evidence is evidence which produces in the mind of the trier of fact an abiding conviction that the truth of the factual contentions are highly probable. *Buildex, Inc. v. Kason Indus.*, 849 F.2d 1461, 1463 (Fed. Cir. 1988). Furthermore, testimony from the purported joint inventors alone is insufficient to meet that burden, thus the alleged joint inventors' testimony must be corroborated. See *Ethicon, Inc. v. United States Surgical Corp.*, 135 F.3d 1456, 1461 (Fed. Cir. 1998); *Fina Oil & Chem. Co., v. Ewen*, 123 F.3d 1466, 1474 (Fed. Cir. 1997).

B. The Legal Requirements That RPA Had To Meet To Establish The Alleged Joint Inventorship

Under 35 U.S.C. § 116:

Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.

A joint inventor¹¹ must (1) contribute in some significant manner to the conception or reduction to practice of the invention, (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts or the current state of the art. *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998); *Fina*, 123 F.3d at 1473-74.

In addition to the factors set forth in *Pannu* and *Fina*, two other elements must be established to prove joint inventorship. First, the alleged joint inventor's contribution must be to the inventive aspect of the claimed invention. Second, there must be some type of joint behavior between the alleged joint inventors. Both of those elements are discussed below.

1. RPA Had To Prove That Its Alleged Joint Inventors Contributed To The Inventive Aspect Of The Claimed Invention – *Sewall v. Walters*

To be a joint inventor, the alleged contribution must relate to the “inventive aspect” of the claimed invention, i.e., the aspect of the invention that sets it apart from the prior art. See *Sewall v. Walters*, 21 F.3d 411, 416 (Fed. Cir. 1994); *Clark v. B.H. Holland Co.*, 86 F.3d 1178, 1996 WL 252846 at **3 (Fed. Cir. 1996) (unpublished opinion affirming E.D. N.C. judgment holding Clark was not co-inventor). RPA failed to establish that factor for both patents.

Sewall involved an inventorship contest between Sewall and Walters. *Id.* at 413. Sewall was employed by Star Technologies and Walters consulted for Star. *Id.* Sewall filed a patent application, naming himself and Walters as joint inventors. *Id.* Walters filed his own patent application, naming only himself as the inventor. *Id.* Both patent applications related to an

¹¹ One truism of the United States' patent laws is that “[c]orporations don't invent; people do.” See *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1575 (Fed. Cir. 1988). Thus, RPA had to identify individual people, not “committees” or “teams,” as alleged joint inventors and RPA had to advance evidence capable of establishing those people as joint inventors on the patents-in-suit under the appropriate legal standards.

improved “apparatus for back projecting data provided by a CT scanner.” *Id.* The “unimproved” apparatus was the subject of an earlier patent issued to Walters. *Id.* The improvement was the addition of a “linearization pointer memory means” identified in the count as “element b.” *Id.*

Much like RPA has done here, Sewall admitted that he did not independently invent the subject matter of the count, but instead contended that he assisted in the conception of the invention. *See Sewall*, 21 F.3d at 415. Sewall argued that because he designed the hardware described in the specification as corresponding to the count, including element b, he should be a joint inventor. *Id.* at 416.

In performing its inventorship analysis, the Federal Circuit noted that the “inventive aspect” of the count was not the particular means used for the linearization pointer memory (or any other elements of the count) but was instead the placement of a linearization point memory means in a back projecting apparatus of a CT scanner. *Sewall*, 21 F.3d at 416. Because the “inventive aspect” was the placement of element b, and because Sewall “admitted that he did not contribute to the placement of element b” Sewall was not a joint inventor. *Id.* at 416-17.

Sewall is applicable to both patents in the present case. The ‘798 patent itself says that the transgene is not the important aspect and can in fact be any gene depending upon what trait is being sought for the resulting plant. In other words, the “inventive aspect” of the ‘798 patent is the corn transformation techniques that allowed the creation for the first time of fertile transgenic corn. RPA admits that its alleged inventors did not contribute to that inventive aspect of the ‘798 patent, just like Sewall admitted in *Sewall*.

Sewall also dictates the outcome for the ‘497 patent. The inventive aspect of the ‘497 patent has to be the insertion points of the genetic material within the genome of the claimed

transformation events. PTX 1815 at DKB 76556. By the time the '497 patent application was filed, RPA's alleged contributions, i.e., genetic material, had entered the prior art. RPA admits that it did not have any interaction with DEKALB's inventors after the genetic material entered the prior art. Because the inventive aspect of the '497 claims is the unique insertion points and because RPA admits that its purported joint inventors did not have any input relating to those insertion points or in locating the claimed events having those particular insertion points, RPA's alleged joint inventors cannot be joint inventors under *Sewall*.

2. RPA Had To Prove Joint Behavior Between Its Alleged Joint Inventors And The True Inventors On DEKALB's Patents – *Kimberly-Clark v. Proctor & Gamble*

While 35 U.S.C. § 116 allows inventors to jointly patent something even if they do not "physically work together" or "at the same time," the word "jointly" is not mere surplusage in the statute. *Kimberly-Clark v. Proctor & Gamble Distr. Co.*, 973 F.2d 911, 917 (Fed. Cir. 1992). *Kimberly-Clark* is the seminal Federal Circuit case regarding the meaning of "jointly" under section 116. As shown below, the law as set forth in *Kimberly-Clark* forecloses RPA's joint inventorship case in light of the evidence presented by RPA.

In *Kimberly-Clark*, Proctor & Gamble (P&G) sued Kimberly-Clark (KC) for infringement of a P&G patent that named one of its employees, Lawson, as the sole inventor. *Id.* at 913. KC sued P&G for infringement of KC's own patent on the same subject matter – the Enloe patent. *Id.* at 912. Thus, *Kimberly-Clark* involved a duel between P&G's Lawson and KC's Enloe to see who was the first inventor.

Enloe established his invention date in the spring of 1982. *Id.* at 912. Lawson's conception date was almost three years later in January 1985. *Id.* at 913. To avoid invalidity in light of Enloe's prior invention date, P&G sought to add two of its other employees, Buell and Blevins, as co-inventors on Lawson's patent under 35 U.S.C. § 256 – the same statute RPA seeks

to use in this case. *Id.* at 913. If P&G could name Buell and Blevins as joint inventors, it could rely on their earlier work to pre-date Enloe's work. Thus, the issue for the Federal Circuit was whether or not Buell and Blevins were joint inventors with their fellow P&G employee Lawson.

P&G made the same argument in *Kimberly-Clark* that RPA makes in this case – that under section 116 “two or more people can be joint inventors even if they know nothing of each other's work.” *Id.* at 915. Although Lawson, Buell, and Blevins all worked for P&G, Lawson worked alone and knew nothing of Buell's or Blevin's work. *Id.* Similarly, in the present case, the only evidence in the record indicates that BioTechnica's Lundquist and Walters and RPA's alleged joint inventors worked for different companies and knew nothing of each others work. No evidence has been presented of anything being communicated to Lundquist and Walter's from anyone at RPA relating to glyphosate resistance.

In *Kimberly-Clark*, the Federal Circuit analyzed joint inventorship under section 116 in detail. *Id.* at 916-17. In doing so, the Federal Circuit noted, “[c]ontrary to P&G's argument, the statute neither states nor implies that two inventors can be “joint inventors” if they have had no contact whatsoever and are completely unaware of each other's work.” *Id.* at 916. The Federal Circuit went on to state:

For *persons* to be joint inventors under Section 116, there must be some element of joint behavior, such as collaboration or working under common direction, one inventors seeing a relevant report and building upon it or hearing another's suggestion at a meeting. ... *Individuals* cannot be joint inventors if *they* are completely ignorant of what each other has done until years after their individual independent efforts. *They* cannot be totally independent of each other and be joint inventors.

Id. 917 (emphasis added).

Cases subsequent to *Kimberly-Clark* have confirmed that the joint behavior requirement of section 116 focuses on individuals, not companies, and requires some type of joint work. *See*

Burroughs Wellcome Co. v. Barr Laboratories, 40 F.3d 1223, 1227 (Fed Cir. 1994) (“A joint invention is the product of a collaboration between two or more *persons working together* to solve the problem addressed”) (emphasis added).

C. RPA’s Alleged Joint Inventors Are Not Co-Inventors Of The Invention Claimed In The ‘798 Patent

The Court should deny RPA’s co-inventorship counterclaim for the ‘798 patent for two reasons. First, the ‘798 patent issued from a continuation of an application filed by BioTechnica in April 1990, well before RPA collaborated with DEKALB and well before RPA alleges it contributed to the invention claimed in the ‘798 patent. That argument is set forth in DEKALB’s summary judgment briefing and DEKALB’s trial brief, which are incorporated by reference.

Second, RPA did not come forward with any evidence capable of establishing any type of joint behavior between its purported joint inventors and Lundquist and Walters at any point in time. RPA’s assertion of “joint” behavior for the ‘798 patent rests solely on the facts that (1) DEKALB purchased assets of BioTechnica after Lundquist and Walters filed their April 1990 patent application, and (2) DEKALB, the company, entered into a collaboration with RPA, the company, in 1991. However, *Kimberly-Clark* makes it clear that that type of relationship is not enough to establish joint inventorship. Under *Kimberly-Clark*, it is the inventors, not their employers, that must exhibit some type of joint behavior. Indeed, if a mere corporate relationship were enough, Lawson, Buell, and Blevins would have automatically been joint inventors in *Kimberly-Clark* – they each worked for the same company, P&G, when they made their alleged inventive contributions.

RPA has argued that the ‘798 patent should not receive the April 1990 filing date because DEKALB added new matter to its May 1995 application. That argument fails for two reasons. First, “new matter” is not an issue because the April 1990 and May 1995 applications are

identical. The disclosure filed in 1990 and refiled in 1995 must support the claims and RPA's alleged joint inventors cannot be both strangers to that disclosure and joint inventors. Second, to succeed on that argument, RPA would have had to overcome "an especially weighty presumption of correctness." See *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1574-75 (Fed. Cir. 1992) ("the fact that the Patent Office allows ... an amendment without objection thereto as new matter (within the meaning of Title 35 U.S.C. § 132) is entitled to an especially weighty presumption of correctness.").¹²

Indeed, RPA does not even attempt to identify any new matter that was added when the May 1995 application was filed. Instead, RPA asserts that the new matter was added in a preliminary amendment that was filed a month after the May 1995 application was filed. That argument fails because new matter cannot be added to a patent once the patent application has been filed. The only way to add new matter is through filing another patent application and that did not happen here.

Moreover, nothing that RPA advanced at trial changes the fact that the April 1990 application discloses an EPSPS gene. In addition, when the April 1990 application was filed, other non-bacterial EPSP synthase genes were shown in the art for imparting glyphosate resistance. One example of such a gene was Monsanto's SMMG, which produces an EPSP synthase with a mutation shown by DEKALB to impart glyphosate resistance in fertile transgenic corn. Thus, even looking to RPA's own argument that the disclosure of "bacterial EPSP synthase" is somehow not a disclosure of "EPSP synthase," those of the art would have known of both Comai's bacterial EPSP synthase and Monsanto's non-bacterial EPSP synthase

¹² See also *In re Smythe*, 480 F.2d 1376, 1385 n. 5 (CCPA 1973).

for imparting glyphosate resistance. Indeed, applying DEKALB's transformation techniques with the Monsanto mutation ultimately resulted in glyphosate resistant corn.

D. RPA Is Not A Co-Inventor Of The Invention Claimed In The '497 Patent

To prove that it should be named as a co-inventor for the '497 patent claims, RPA has to prove that it (1) contributed in some significant manner to the conception of the invention, (2) made a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) did more than merely explain to the real inventors well-known concepts and/or the current state of the art. *See Pannu*, 155 F.3d at 1351. Moreover, RPA had to show that the contribution made by its alleged joint inventors was to the inventive aspect of the claimed inventions. *See Sewall*, 21 F.3d at 416. RPA cannot clearly and convincingly prove the above elements because when the application for the '497 patent was filed the genetic components of the GA21, FI117, GG25, and GJ11 transformation events and the method of transforming corn were already in the public domain.

That fact is significant for two reasons. First, it shows that the '497 patent claims were patentable because the claimed transformation events are new and nonobvious combinations of old elements and RPA did not contribute to how the prior art elements were combined, i.e., the inventive aspect of the claims.¹³ Second, it establishes that RPA's alleged contribution was not significant when measured against the dimension of the full invention.

RPA argues that the fact that its alleged contributions were in the prior art is irrelevant, citing *Pannu*. In *Pannu*, Dr. Pannu sued Iolab Corp. for patent infringement on Pannu's patent for an improved intraocular plastic lens. *Pannu*, 155 F.3d at 1347. Iolab asserted that the patent was invalid under 35 U.S.C. § 102(f) for improper inventorship because the patent did not name

¹³ As this fact is recognized on the face of the patent, RPA's scientists could not have been named as inventors.

Dr. Link as an inventor. *Id.* at 1347 & 1348. Iolab also argued that Link was the sole inventor because Pannu had already placed his contribution to the invention ... in the art." *Id.* at 1347.

Rejecting Iolab's argument that Pannu was not a co-inventor, the Federal Circuit stated

Iolab asserts that because Pannu placed his contribution in the prior art more than a year before he met with Link in 1980 Pannu cannot even claim the status of joint inventor. Iolab is mistaken. It is undisputed that Pannu and Link collaborated in the development and production of one-piece prototype embodiments of the invention. Link cannot claim the status of a sole inventor simply because Pannu disclosed his ideas to Link and others more than a year earlier. During the meeting with Link, *Pannu was doing more than simply providing Link with well-known principles or explaining the state of the art*; he was contributing his ideas concerning snag-resistant elements to a total inventive concept. Because *it is undisputed that the invention was conceived while Link and Pannu were engaged in a collaborative enterprise* and it is further undisputed that Pannu conceived significant aspects of the invention, Pannu is certainly at least a co-inventor.

Id. at 1351 (emphasis added). From that statement, RPA argues that it does not matter that its supposed contributions were in the prior art.

Pannu does not support RPA's broad generalization for several reasons. First, in *Pannu*, it was undisputed that Pannu and Link collaborated in the development and production of the claimed embodiment of the invention. Here, the claimed events are the only embodiments of the inventions. Instead of assisting in the creation and identification of those events, RPA dropped off its constructs and did nothing else. There is no evidence that RPA's alleged joint inventors contributed in anyway to the transformations or the identification of the events claimed in the '497 patent.

Second, in *Pannu*, it was undisputed that the invention was conceived while Link and Pannu were collaborating together. Here, the claimed invention is the new and nonobvious combination of the prior art constructs made using prior art processes. That combination could not have been conceived until the inventors (Spencer, Mumm, and Gwyn) identified the

transformation events so as to be able to distinguish them from other events and to describe how to obtain them. *See Amgen, Inc. v. Chugai Pharma. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991) (“conception of a chemical compound requires that the inventor be able to define it so as to distinguish it from other materials, and to describe how to make it.”). Here, there is only one way to describe how to obtain the claimed transformation events – they have to be obtained from the seeds at the ATCC that were created and identified by DEKALB’s inventors. Because of their nature, the claimed events cannot be duplicated by merely duplicating the bombardments, electroporation, regenerations, and/or selections and identifications.

Thus, the claimed events were not conceived while any of RPA’s alleged joint inventors were collaborating with Spencer, Mumm, or Gwyn. Indeed, even the companies, DEKALB and RPA, were not in a collaborative enterprise at the time. The transformations, and hence the patentable arrangement of the prior art constructs using prior art techniques, were created and identified by Spencer, Mumm, and Gwyn without any collaboration from RPA’s alleged joint inventors.

E. RPA’s Alleged Contributions Were Merely Derived From Calgene’s Luca Comai

To be joint inventors, RPA’s alleged joint inventors had to make contributions that were significant. Here, any contributions made by RPA’s alleged joint inventors were not their own but were merely derived through Calgene’s Luca Comai. Thus, RPA’s alleged inventors are not inventors at all. They are merely conduits for someone else’s technology. Moreover, because Luca Comai placed much of the relevant technology into the public domain, the alleged contributions by RPA’s supposed joint inventors cannot be significant. In other words, RPA’s alleged contribution was no more than brokering to DEKALB what Comai had already conceived and/or what Comai had made available to the art. *See Hess*, 106 F.3d at 981.

III. CONCLUSION

For the reasons set forth above, the Court should grant judgment denying RPA's joint inventorship counterclaims for the '798 and '497 patents.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I caused a copy of the foregoing document entitled **DEKALB'S POST-TRIAL PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW** to be served on September 29, 2000 via facsimile (without exhibits) and overnight delivery upon:

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